

N^o 1147



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COMPLETE SPECIFICATION.

Improvements in Electric Motors for Rotary Dental Tools and the like.

I, PETER JENSEN, of 77, Chancery Lane, in the County of Middlesex, Chartered Patent Agent, do hereby declare the nature of this invention, which has been communication to me from abroad by The Browning Manufacturing Company, of Number 125, Michigan Street, in the City and County of Milwaukee
5 and State of Wisconsin, United States of America, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention has for its object to improve the construction of that class of electric motors designed for the operation of rotary tools, especially such as
10 are used in the dental art, and to that end, the said invention consists in certain peculiarities of construction and combination of parts, all as is more particularly described hereinafter in connection with the accompanying drawings, and subsequently claimed.

DESCRIPTION OF THE DRAWINGS.

15 Figure 1 is a view in front elevation of the said electric motor arranged in a suitable standard in connection with a controlling device, for operating a dental engine.

Figure 2 is an end view of said motor, with its protecting shell removed, showing also part of the supporting standard in section, and drawn to an enlarged
20 scale.

Figure 3 is a sectional view of said motor, taken on the line 3—3 of Figure 4, and

Figure 4 is another sectional view of said motor, taken on the line 4—4 of Figure 3.

25 Referring by letter to the drawings, A represents the supporting standard, consisting of a hollow shank terminating in a flat base plate, *a*, which rests upon the upper surface of an electric motor controlling device, or switch apparatus B, to which the said base-plate *a* is secured, by screws as shown, the controlling device B having suitable legs *b b* which thus become the legs or sup-
30 ports of the motor standard A. At its upper end, the said standard A is expanded into a ring C, having a socket *c* at the top, for the reception of an arm D, which in turn, at its upper end, is formed with a socket *d*, to receive the lower end of the rod E, designed for the support of the usual flexible shaft (not shown) of a dental engine, rotated by a belt (also not shown) from a pulley *e*, on the herein-
35 after described armature-shaft I.

Fitting within the standard ring C is the annular frame F of the field-magnet, formed integrally with the shanks *f f* of the pole-pieces G G, the latter being made separate and independent from the pole-shanks, to which they are afterwards secured, by the screws *g g* as hereinafter explained. H H indicate the
40 field-coils, fitting around the pole shanks *f f*, as shown. The opposed ends of the pole-pieces G G are secured together by the connecting-pieces *h i*, which are made preferably of brass or other non-magnetic material and formed with central hubs, for the reception of the shaft I of the armature J, and its com-

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mutator K. The connecting-piece *i* has two metallic strips *j j* connected thereto, one on each side, but insulated therefrom, as shown. L L indicates brushes for engagement with the commutator K, which brushes are pivotally attached, one to each of the said strips *j*, as shown best at *m*, in Figure 2. and held against said commutator by springs *n*. The hubs of the connecting-pieces *h i* are provided with holes *o o*, whereby the shaft I is lubricated by means of oil-cups, indicated by the dotted circles *p p*. 5

In assembling the motor, after the field-coils H H have been slipped to place upon the pole-shanks *f f*, the armature J, commutator K and shaft I, with the pole-pieces G G, connecting-pieces *h i*, and brushes L L is slipped to place, with the screw-threaded bores in the said pole-pieces in line with the bores through the pole-shanks *f f* and ring C of the standard A, and then the screws *g g* are inserted and tightened. Next the semi-spherical shells M M are adjusted to place, enclosing the motor as shown in Figure 1, one of said shells having a central hole for the passage of the shaft I therethrough. The described ring C is undercut on its opposite edges for the reception of the adjacent edges of the said shells M M, which are then fastened securely by means of the screws *g g* passing through the said ring C and clamping the shells against the described annular frame F of the field-magnet. Then the pulley *e* is secured to the projecting end of the shaft I. 10 15 20

As heretofore stated, the standard A is hollow and the conducting-wires pass up through the same from the controlling device B, and through openings in the ring C and annular frame F, all as shown best in Figure 2, the wires *r r* leading to the strips *j j* and the wires *s s* to the field-coils H H, and being properly connected as shown, all of said conducting wires being thus concealed and protected within the standard of the motor. 25

The electric-motor controlling device, or switch apparatus B, may be of any suitable or preferred construction, with the usual cable leading from the source of electric supply, and with conducting wires leading up to the motor as just explained, but by having the said conducting wires all extending up within the hollow standard, as shown, the device is made neater and more compact than with exposed conducting wires, and further, when it is desired to render the device still more compact, this is accomplished by mounting the said hollow standard A upon the controlling device B, as shown in Figure 1. 30

Having now particularly described and ascertained the nature of the said invention, and in what manner the same is to be performed, I declare that what I claim is:— 35

1. The combination with an annular magnet comprising a continuous ring having opposed inner shanks integral therewith, field-coils mounted on said shanks and separate curved pole-pieces removably secured to said shanks, of non-magnetic connecting-pieces uniting the opposed ends of said pole-pieces, a shaft journaled in said connecting-pieces, an armature and commutator on said shaft, insulated metallic strips secured to one of said connecting-pieces. and spring-controlled commutator brushes hinged to said strips. 40

2. The combination with a suitable hollow standard expanded into a ring at its upper end, said ring being undercut on each inner edge, of an annular magnet frame, comprising a continuous metal ring having opposed inner shanks integral therewith, fitted within the said standard ring, field-coils on said shanks, separate curved pole-pieces secured to said shanks by screws passing therethrough and through both of said rings; connecting-pieces uniting the opposed ends of said pole-pieces, a shaft journaled in said connecting-pieces, an armature and commutator on said shaft, insulated metallic strips secured to one of said connecting-pieces, spring-controlled commutator-brushes hinged to said strips, series of conducting-wires leading up through said hollow standard, and connected, respectively, to said strips, and to said field-coils, and semi-spherical shells clamped between the annular magnet frame and the standard-ring, one of said 45 50 55

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shells having a central aperture for the passage of the armature-shaft there-through.

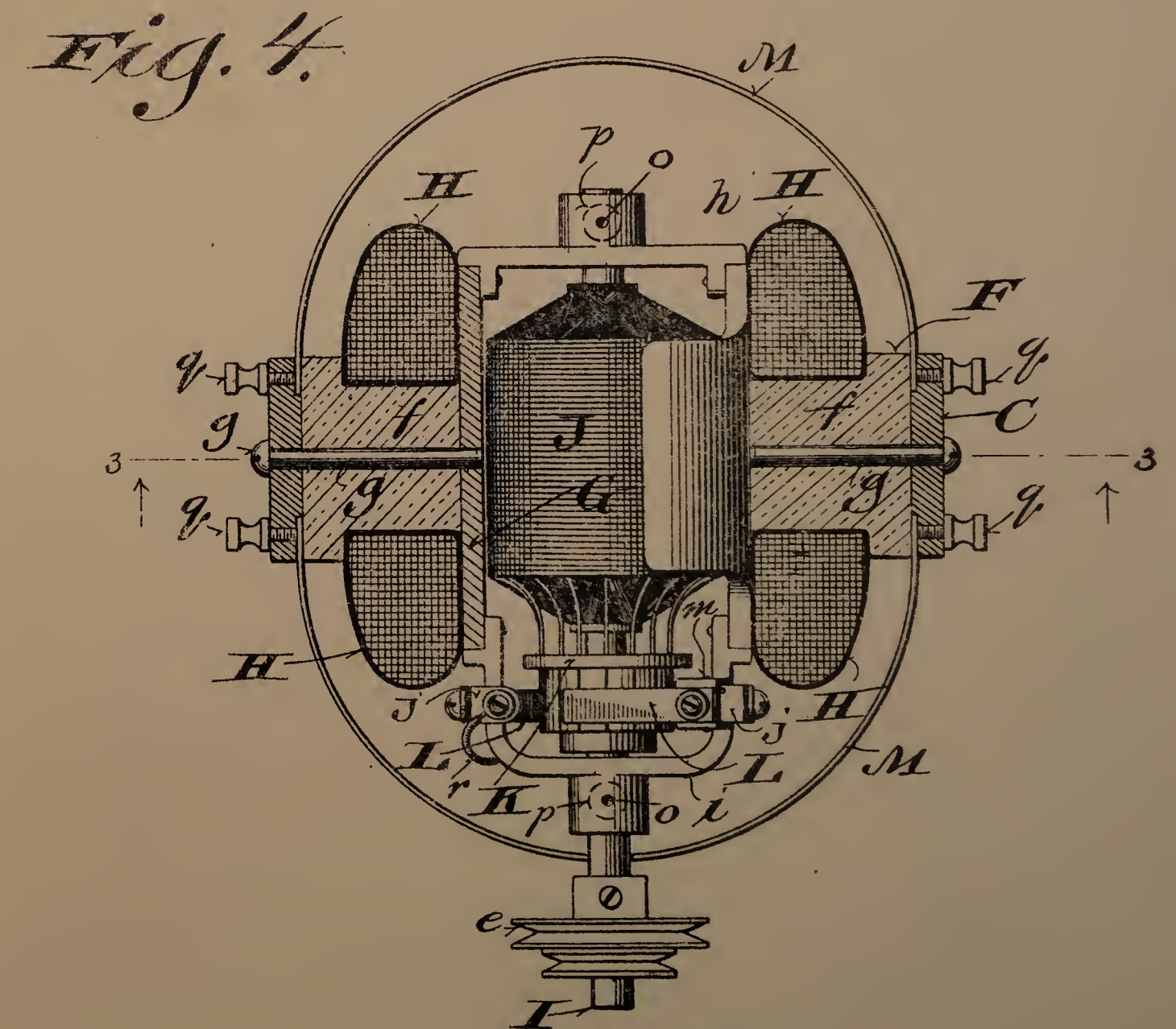
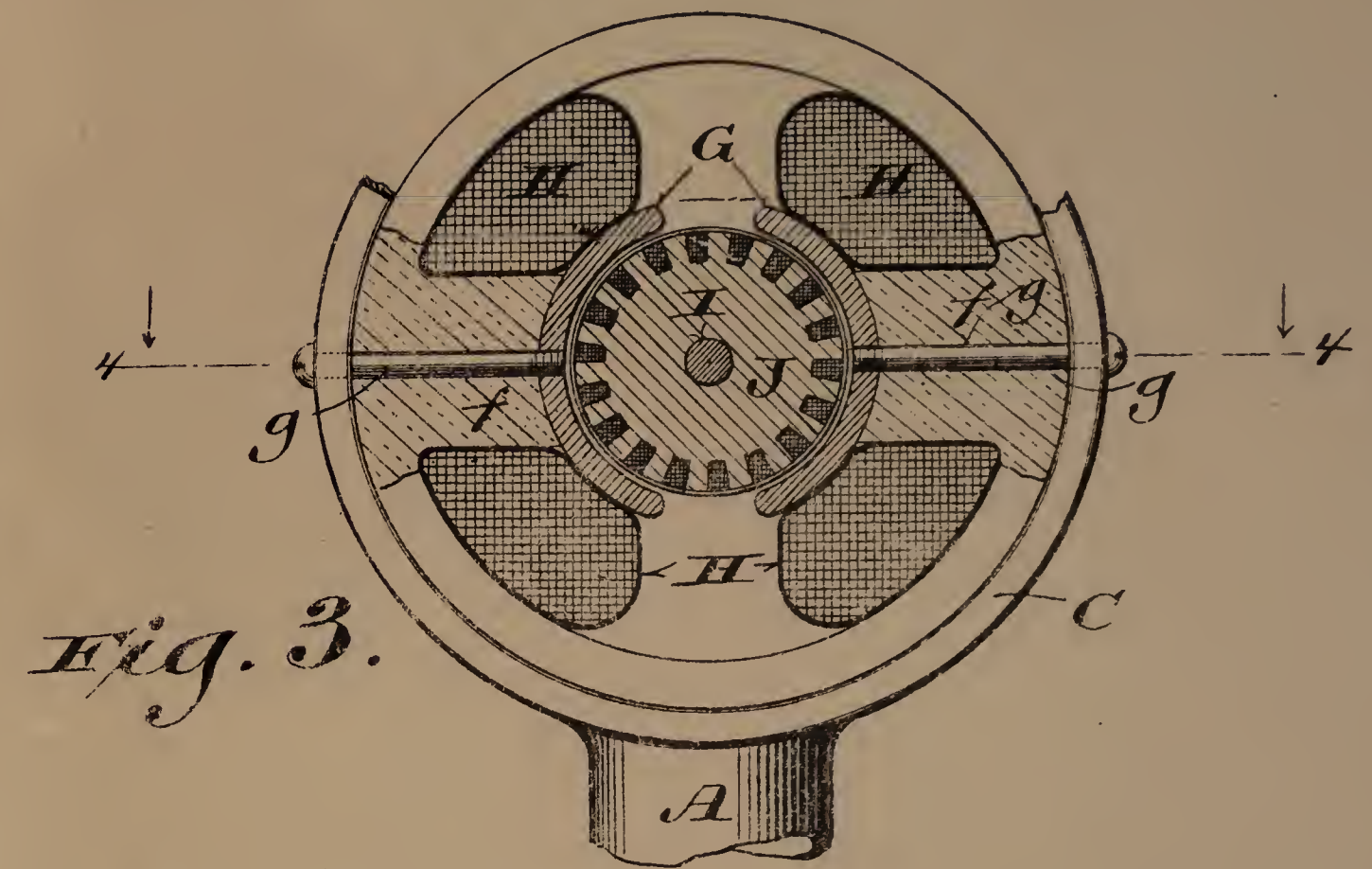
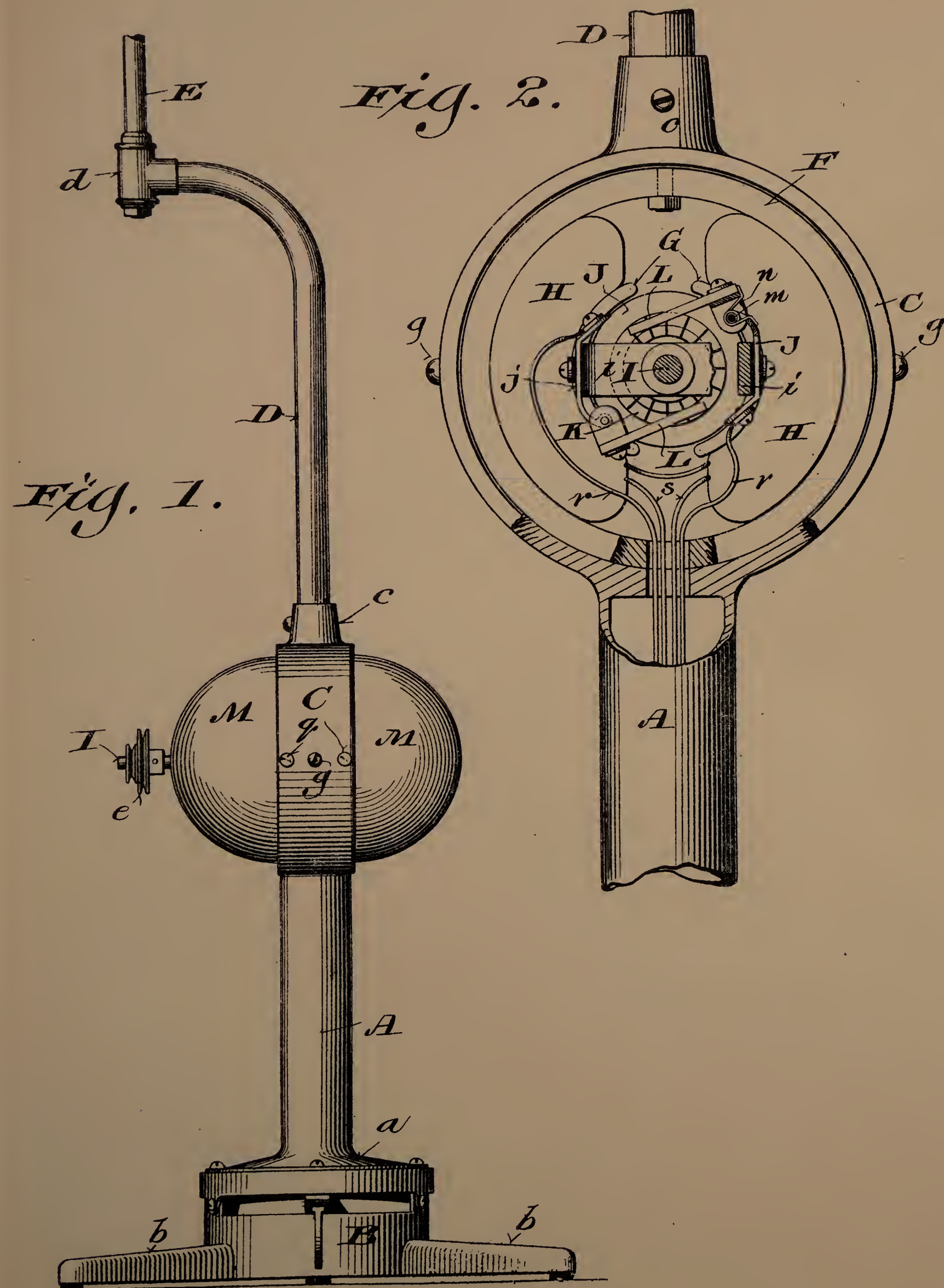
3. In an electric motor for rotary dental tools and the like, the combination with a hollow standard expanded into a ring at the upper end, a motor having an
5 annular magnet frame fitting within the ring of the standard, conducting-wires leading up through said hollow standard and connected to said motor, and a semi-spherical shells fastened to said standard-ring and enclosing said motor, one of said shells having a central aperture for the passage of the shaft of the motor therethrough.
- 10 4. In an electric-motor for rotary dental tools and the like, the combination with a motor controlling device, of a hollow standard secured to and rising from said controlling device and expanded into a ring at its upper end, a motor having an annular magnet frame fitting within the ring of the standard, conducting wires leading up from said controlling device through the hollow
15 standard and connected to said motor, and semi-spherical shells fastened to said standard ring and enclosing said motor, one of said shells having a central aperture for the passage therethrough of the motor-shaft.

Dated this 18th day of January 1900.

20 JENSEN & SON,
77, Chancery Lane, London, W.C.. Patent Agents.

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[This Drawing is a reproduction of the Original on a reduced scale]

